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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/685,636	10/15/2003	Stephen W. Bedell	YOR920030340US1	4997

7590 12/31/2008

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ART UNIT	PAPER NUMBER
2811	

MAIL DATE	DELIVERY MODE
12/31/2008	PAPER

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The time period for reply, if any, is set in the attached communication.

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte STEPHEN W. BEDELL,
KEITH EDWARD FOGEL, BRUCE KENNETH FURMAN,
SAMPATH PURUSHOTHAMAN,
DEVENDRA K. SADANA, and ANNA WANDA TOPOL

Appeal 2008-5836
Application 10/685,636
Technology Center 28000

Decided: December 31, 2008

Before PETER F. KRATZ, JEFFREY T. SMITH,
and LINDA M. GAUDETTE, *Administrative Patent Judges*.

GAUDETTE, *Administrative Patent Judge*.

DECISION ON APPEAL

This is an appeal from the final rejection of claims 1-11.[1] (App. Br. 2:26-29.) We have jurisdiction under 35 U.S.C. § 6(b).

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[1] Claims 12-48 are also pending, but have been withdrawn from consideration. (Final Office Action, mailed September 26, 2006, p. 1.)

We AFFIRM.

Appealed claims 1 and 6 are reproduced below:

1. A layer transfer structure comprising a carrier substrate having a porous region with a tuned porosity in combination with an implanted-species positioned therein defining a separation plane in the carrier substrate.

6. The structure of claim 1, wherein the porous region comprises a varied porosity.

The Examiner relies on the following prior art reference to show unpatentability:

Sakaguchi	6,306,729	Oct. 23, 2008

Appellants request review of the rejections of claims 1-8 and 10-11 under 35 U.S.C. § 102(b) as anticipated by Sakaguchi and of claim 9 under 35 U.S.C. § 103(a) as unpatentable over Sakaguchi.

ISSUES

The issues presented for our review are:

1. Have Appellants shown that the Examiner reversibly erred in finding that Sakaguchi discloses an "implanted-species . . . defining a separation plane" as claimed in claim 1? and

2. Have Appellants shown that the Examiner reversibly erred in finding that Sakaguchi discloses a porous region of varied porosity as claimed in claim 6?

Appellants state that "[c]laims 1, 2, and 6 are being appealed" (App. Br. 2: 9-10) and later state that they withdraw their appeal of claim 2. (Reply Br. 4:5.) We interpret these statements as an indication that claims 1 and 6 are separately argued. *See* 37 C.F.R. § 41.37(c)(1)(vii) (2004).

We answer these questions in the negative.

FINDINGS OF FACT

1. The Specification states that

> [t]unable silicon porosity (pore size and density) may be realized by controlled variation of the anodization process. The most commonly utilized process leads to a bi-layer porous structure where the top of the porous structure is a layer created by forming a low porosity region, upon which the anodization conditions are changed so that deeper in the substrate a porous region of higher porosity level is created.
>
> (Spec. 7:10-15.)

2. According to the Specification, "tunable porosity may also be achieved through the implantation of silicon having the appropriate ionic species, activating the ionic species by annealing and then anodizing the substrate to obtain the porous region." (Spec. 7:25-8:1.) The Specification states that "[t]his method allows for a controlled way to achieve layer transfer by defining a separation plane in the porous region through implantation of a dopant and/or a non-dopant ion into the silicon-containing substrate." (Spec. 8:1-3.)

3. Fig. 4 of the Specification is said to depict a decal structure (Spec. 10:5-6) comprising a carrier substrate 100 which "may have a separation plane defined therein, if the release layer was created using porous silicon bi-layer as in the conventional techniques or at the implant induced separation plane" (Spec. 10:22-24).

4. According to the Specification,

> a bi-layer porous region 120 may comprise two layers having different porosities, namely layer 121 and layer 122. In this

> case, splitting may occur proximate to the interface of layers 121 and 122. In the case of an implantation induced separation plane, splitting . . . will again result in the separation of region 120 at the separation plane defined by implant location to form interface layers 121 and 122.
>
> (Spec. 10:26-11:4.)

5. The Specification describes porous region 120 as being of "variable porosity" (Spec. 9:14).

6. Sakaguchi discloses a method of forming a multilayer structure comprising forming a doped layer 12 on a semiconductor substrate 11. (Col. 3, ll. 40-41.) In accordance with Sakaguchi's method, a portion of the doped layer 12 is then modified into a porous state to form a porous, doped layer 13 and a residual doped layer 12A. (Col. 3, ll. 44-47.) Sakaguchi states that "[t]he porous layer is preferably made to comprise two thin layers having different porosities." (Col. 10, ll. 39-40.) According to Sakaguchi, the layers define a separation plane by which the multilayer structure 1 is separated. (Col. 10, ll. 54-56.) *See also,* Sakaguchi, col. 18, Embodiment 2.

7. According to Sakaguchi, techniques for adding a dopant "include diffusion, ion implantation and epitaxial growth." (Col. 7, ll. 43-44.) Sakaguchi further discloses that "[a] semiconductor article according to the invention can be made to become separated along a specific depth in or on the interface of the porous Si layer by implanting ions of at least an element selected from rare gas, hydrogen and nitrogen." (Col. 11, ll. 1-4.)

PRINCIPLES OF LAW

During examination, claims terms must be given "their broadest reasonable construction consistent with the specification." *In re Icon Health and Fitness, Inc.*, 496 F.3d 1374, 1378-79 (Fed. Cir. 2007).

A reference is anticipatory within the meaning of § 102 if it discloses each and every claim limitation either expressly or inherently. *In re Schreiber*, 128 F.3d 1473, 1477 (Fed. Cir. 1997).

ANALYSIS

Claim 1 requires "a porous region . . . with an implanted-species positioned therein defining a separation plane." Turning to the Specification, we determine that this language defines a structure (FF 2) which is different from a structure in which a separation plane is defined by a plane of demarcation between two layers of different porosity (FF 1). (*See* FF 3, 4.)

Appellants concede that Sakaguchi discloses the latter structure, i.e., a "*porous* ***layer*** *13* that operates as a separation layer" (Reply Br. 5:9-10 (quoting Sakaguchi)). (*See also*, Reply Br. 7-8 (discussing appealed claim 6).) However, Appellants disagree with the Examiner's finding that Sakaguchi also discloses "an implanted-species . . . defining a separation plane" as recited in claim 1 (*see* Ans. 3, last paragraph, and 7:1-4).

We are not persuaded by Appellants' argument given Sakaguchi's express statement that separation of the porous layer may be effected by implanting ions at a specific depth in the porous layer (FF 7). Appellants have not explained why the language of claim 1 does not read on this structure.

Appellants also argue that one of ordinary skill in the art would not understand a plurality of sub-layers having different respective porosities, as disclosed in Sakaguchi (FF 6), as a porous region of varied porosity within the meaning of claim 6. (Reply Br. 7-8.) However, Appellants have not directed us to any evidence which supports their contention as to the level of understanding of the ordinary artisan. Moreover, the Examiner's position appears to be supported by Appellants' own Specification (*see* FF 4, 5).

Because the Appellants have not shown reversible error in the Examiner's finding of anticipation as to claims 1 and 6, we sustain the rejection of claims 1-8 and 10-11 under 35 U.S.C. § 102(b) as anticipated by Sakaguchi.

Appellants do not present any additional arguments traversing the rejection of claim 9 (dependent from claim 1) under 35 U.S.C. § 103. Accordingly, we likewise sustain this ground of rejection for the reasons set forth in the Answer (*see* Ans. 6).

CONCLUSION

The decision of the Examiner rejecting claims 1-11 is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED

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